

Special Issue Honouring Helias A. Udo de Haes: Columns

Life Cycle Thinking: An Approach to Bridge Environment and Development

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Everyone today recognizes that long lasting economic growth has to be built on sound environmental foundations, that environment and development cannot be separated. Rapidly growing economies are discovering the costs, and relevant impact on their own environment, of their current industrialization practices: need for increasing energy and water resources and related air and water pollution, destruction of their own life supporting ecosystems. All this has been repeated again at the highest level at the 9th UNEP Global Environmental Ministerial Forum held in Dubai in February 2006 and one can consult the Global Environment Outlook (www.unep.org/geo) to access the precise figures demonstrating the worsening of trends in developing regions.

Life Cycle Thinking (LCT) and the related tools, Life Cycle Assessment (LCA) and Life Cycle Management (LCM), are certainly approaches that could help both governments and industries in fast growing Countries to develop the new policies which are needed to change this current course of environmental degradation and make the correspondent strategic and innovative technology choices: already, on the May 31, 2000 'Malmö Declaration', Ministers of Environment, gathered at the first Global Ministerial Environment Forum, stated that "[Our efforts] must be linked to the development of cleaner and more resource efficient technologies for a life-cycle economy". On September 2002, The World Summit on Sustainable Development (WSSD)'s plan of implementation stated: "We must develop production and consumption policies to improve the products and services provided, while reducing environmental and health impacts, using, where appropriate, science-based approaches, such as life cycle analysis".

For governments and local authorities, LCT makes it possible to link environmental policy with other policy areas. It helps develop integrated approaches and manage the complex issues that decisions makers are currently facing. It helps to avoid transferring a problem from one part of the environment to another. Applied to existing policies and legislation in all fields – such as transport, construction and housing, agriculture, fiscal ... – LCA helps assess relevant environmental impacts and prepare solutions to avoid them. It also assists in developing new and better environmental information systems and uses them in holistic approaches, avoiding piecemeal views.

For industry, LCT approaches, and in particular LCA, can substantially help design better technologies and products to market and use. LCA facilitates choices between alternatives by comparing their environmental impacts, and helps with the identification of priorities for environmental improvement and innovation: where, in the whole life cycle of a product or a service, can energy or water be saved, pollution under all forms reduced, biodiversity preserved ... ? Many business executives are recognizing that LCT is making good business sense. Consumers in industrialized countries are increasingly requesting information about the product they buy. LCA will help business and industry in industrializing countries to prepare 'Environmental Product Declaration' that will increasingly be a marketing tool facilitating export towards industrialized countries.

We all know, however, that there is still a lot to do in industrialized countries to improve LCT, LCA and LCM, as well as to spread their use. Barriers encountered are of different kinds. Life Cycle Inventories (LCI), the most important step in LCA on which the assessments are based, are at the source of all subsequent analysis. Even if the LCA methodology has been standardised (ISO 14040-14043, finalised in 2002), a variety of applications have proliferated. The indicators and weight given to them vary substantially, and results can be interpreted in different ways, with different bias, depending on the interests and the viewpoints of those involved. There is therefore a need for validated metrics, for more transparent and reliable data collection and, in general, for consistency. A number of database systems and software tools already exist, but there is certainly room for improvement. In addition, many tools seem, and often are, quite difficult to use, thus discouraging potential users. Additional aspects are not yet taken into account: life cycle costing methods to evaluate both existing monetary costs as well as externalities linked with loss of natural resources and with pollution (for example health impacts) are still embryonic; there are more and more voices requesting to look at 'Sustainability LCA' and not only 'Environmental LCA', therefore taking into account social aspects along the whole life cycle.

It is obvious, from the various conferences and seminars, that there is not yet a shared image of the life cycle concept. This should not be an obstacle for a wide range of decision makers in all parts of the world and in particular in indus-

trialising countries to increase their awareness on LCT of and for developing the implementation of LCA, and LCM practices in those Countries. On the contrary, this growing awareness will bring an increased dialogue and development of harmonized approaches. In that respect, the international seminar on LCA, held in Bangkok in December 2005 for APEC economies, is an interesting initiative. The current work done in the UN to prepare the 10-year framework of programmes to promote sustainable patterns of consumption and production as requested at WSSD should also provide a worldwide forum to promote the use of LCT. The Cleaner Production Centers established in various countries will also be important national actors to lead the dissemination of LCT, and the network established between those centres by UNEP and UNIDO will allow exchange of points of views and experiences. LCT is also of great interest to International, Regional and National industry associations: the International Institute on Iron and Steel (IISI), for example, has clearly demonstrated leadership in developing a worldwide Life Cycle Inventory database, regularly updated, and involving the contribution of partners along the supply chain, especially in the mining, mineral and energy industry sectors. The results of this work are communicated to IISI members, to customers, as well as to public authorities. Plastics Europe and the American Plastics council are also engaged in providing polymer LCI databases to their customers. Similar interesting initiatives are taken in other industry sectors, and by individual companies. Their work now also covers rapidly growing economies. Last but not least, the UNEP/

SETAC Life Cycle Initiative provides a key structure and organisation that is growing to facilitate implementation and development of LCT and related tools. Both UNEP and SETAC had already been successful separately in promoting life cycle approaches worldwide, and the cooperation has brought long term synergies between the partners. The creation of working groups on key topics, such as LCIA, LCM, the publication of easy to read informative documents, the regular organisation of workshops or international major events such as the 'LCM 2005 innovation by Life Cycle Management' held in Barcelona in September 2005, are rendering the UNEP/SETAC Initiative an indispensable platform to which LCT actors and practitioners want to be associated (www.unepdtie.org/pc/sustain/lcinitiative)

Helias A. Udo de Haes, Director of the CML – Institute of Environmental Sciences at Leiden University (NL) has been the initiator of the partnership which led at the launch of the UNEP/SETAC Initiative in early 2002, as a contribution to the WSSD. I have just supported the idea, and enjoyed working with him. I have already retired from the UN, Helias is going to retire soon. But it is rewarding to know that the Initiative is growing, to witness new leadership being involved in the conduct of the initiative, to see the first fruits of these initiatives and also to know that there is an important future ahead.

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